AF/2875

PATENT
DOCKET NO. 810030-234

23/Reconsideration
5/29/02

I certify that on May 8, 2002, which is the date I am signing this certificate, this correspondence and all listed attachments are being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231

James A. Henricks

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application Of:	**RICHARD J. RICHARDSON**	Examiner:	**Ward, J.**
Serial Number:	08/919,947		
Filed:	August 29, 1997	Group Art Unit:	2875
Title:	LIGHTING CIRCUIT, LIGHTING SYSTEM METHOD AND APPARATUS, SOCKET ASSEMBLY, LAMP INSULATOR ASSEMBLY AND COMPONENTS THEREOF		

Assistant Commissioner For Patents
Washington, D.C. 20231

AFTER FINAL
REQUEST FOR RECONSIDERATION OF MARCH 8, 2002 FINAL REJECTION

Sir:

In response to the Final Office Action dated March 8, 2002, and identified as paper No. 22, please reconsider the Final Rejection in view of the following remarks.

REMARKS

In response to the March 8, 2002 Final Office Action, Applicant respectfully requests reconsideration of the above-identified application in view of the following remarks.

Applicant appreciates the reconsideration of the Application in view of the Appellant's Appeal Brief filed 7 December 2001. It appears that the rejections of claims 81-99 are withdrawn in favor of new rejections based on a combination of *Amstutz et al.* and *Yoon et al.* It also appears that the present final rejections of claims 100-117 are based on the same references as in the earlier final rejections, while the earlier final rejection of claim 118 has been withdrawn and is now based on a combination of *Amstutz et al.* and *Yoon et al.*

Applicant now requests reconsideration of the new Final Rejections set forth in the March 8 Office Action for the following principal reasons. First, the rejections of claims 81-99 based on *Amstutz et al.* and *Yoon et al.* suffer the same deficiencies as the original rejections of those claims based on *Amstutz et al.* and *Pacholok*, which rejections were withdrawn by the Examiner. Second, there is no teaching or suggestion that *Amstutz et al.* relates to a refrigerated display case [Office Action, page 8, line 13.] Third, the Examiner provides no prior art that recognizes any problem in electronic ballast circuits arising from surface areas of contact in circuit functions. Fourth, the Examiner provides no support for the contention, that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide [an improved surface area of contact such as] a surface area of at least 0.008 square inch . . . , " because the Examiner does not identify the "art" and because the Examiner provides no evidence in that "art" in support of the contention. Each of these will be discussed below.

I. Background

Applicant demonstrated in its Appeal Brief that a problem was discovered in circuits using electronic ballasts, which ballasts operate at high voltages and frequencies, especially those circuits used in extreme environments such as refrigerated display cases. A solution to the problem was to ensure adequate conduction of current, such as by sufficient cross-sectional area

for current flow in the lighting circuit, especially through junctions placed between the electronic ballast and the lamp. No cited reference addresses any problem of circuit defects arising from electronic ballasts and junction integrity between the ballast and the lamp.

"[A] patentable invention may lie in the discovery of the source of a problem even though the remedy may be obvious once the source of the problem is identified. This is part of the 'subject matter as a whole' which should always be considered in determining the obviousness of an invention under 35 U.S.C. Section 103." In re Sponnoble, 405 F.2d 578, 585, 160 USPQ 237, 243 (CCPA 1969). In the present case, electronic ballast failures were thought to be due to internal ballast circuit design. *Yoon et al.* is directed to internal ballast design. However, Applicant recognized that the circuit between the ballast and the lamp contributes to ballast problems, which recognition led to several aspects of the present inventions, including better lamp sockets and better circuit junctions. None of these problems are addressed in the prior art, and when considering the subject matter of the inventions as a whole, these facts weigh heavily in favor of patentability of these claims.

As noted in Applicant's specification, "It is also believed that inadequate connection and reduced conductivity in the lighting circuit may lead to lighting inefficiencies and possible ballast failure even before complete failure of an electrical connection, such as failure of the connection between the lamp and its socket. It is believed that the effect on the ballast of an inadequate connection results from a combination of the characteristics of the ballast and the characteristics of the lighting circuit. These characteristics are discussed more fully in Applicant's specification. [See Applicant's Specification, 7:19-24.] Those characteristics include the nature of the ballast itself and the lighting circuit components.

Ballasts are constant current devices and electronic ballasts achieve constant current at a high voltage and a high frequency. As noted above, as the circuit impedance increases, such as when the lamp ages, when the lamp is operated at less than the optimal temperature of 104 degrees, or when circuit junctions such as the lamp socket deteriorate as by corrosion or contact

separation, the ballast adjusts accordingly. The result could be arcing in the circuit, overheating, or ballast failure. [Specification 8:1-15.]

In one example, lighting circuits using electronic ballasts are improved by increasing one or more of the cross-sectional area of contact of the junctions and of the wiring used to carry current from the ballast to the lamp. For example, the surface area of the socket for the coupling to the lamp pins is increased, and the surface area of a second junction between any wiring and the socket is increased. Additionally, if there is a third junction between the second junction and the ballast, the surface area of the connection is preferably increased. The surface area is preferably at least 0.008 inches square, but preferably more. In one embodiment, the junctions are formed from cylindrical and pin connectors allowing current flow over a substantial portion of the surface area of the junctions. The wiring between the ballast and the lamp is preferably at least 16 gauge.

None of the references relied upon by the Examiner address all of these issues.

II. The New Rejections of Claims 81-99 Are Still Deficient

Claims 81 and 89-91 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over *Amstutz et al.* (U.S. patent No. 4,955,044) in view of *Yoon et al.* (U.S. patent No. 6,031,338). The rejections of claims 82-88 and 92-99, and the rejection of claim 118, are also based on *Amstutz et al.* as the primary reference and *Yoon et al.* as a secondary reference. Without waiving significant arguments relating to *Keller* alone and in combination with the other two references, some of which are set forth in Applicant's Appeal Brief, there is no teaching or suggestion to combine *Amstutz et al.* and *Yoon et al.*, or that any such combination would make the claims obvious.

Amstutz et al. show a lighted display case having a ballast 44 and a socket and plug combination 107 and 105, respectively. As noted in *Amstutz et al.*, the basic construction of the display case is the same as that described in the co-pending application, which issued as U.S. Patent No. 4,886,327. [See, U.S. Patent No. 4,955,044, 3:28-32. Hereafter, citations will take

the form of 'xxx:yy:z-zz, where "'xxx" are that last digits of the patent number, "yy" the column number of the cited text, and "zz" the line numbers.] Neither of the patents mentions electronic ballasts or the quality or surface area of any electrical components between the ballast and the lamp. Consequently, there is nothing in either of these references that would commend them to one of ordinary skill in the art to solve the problems solved by the present inventions, or to combine them with any of the other references of record.

Both patents teach a display case with a lighting system that is easier to make, and that facilitates quick and easy replacement of the display case panels. The '044 patent also shows a coupling assembly for releasably securing adjacent display cases together without marring or disfiguring the ends. ['044:1:59-64.] The ' 327 patent also mentions a lighting fixture having a separable rigid down-feed tube for electrical wiring extending from the base of the showcase to the lighting fixture. This allows the lighting fixture to be made and shipped separately from the display case, and also allows the wiring to be protected and hidden. ['327:3:4-43.] The patents say nothing about the characteristics of the lighting circuit, but instead focus on manufacturing and assembly concerns.

While both of the *Amstutz et al.* patents show plugs 112 (FIG. 5) and 140 (FIG. 14), there is no suggestion of enhanced plug/socket characteristics and there is no suggestion that the plugs and sockets have a relatively high surface area of contact. To the contrary, the only suggestion of the plug/socket characteristics shows that the surface area of contact is minimal. Specifically, the '327 patent states that the connectors 140 and 144 are vertically aligned "so that slight lateral movement of connector 144 to the left, as viewed in FIG. 14, will cause the connectors to engage." ['327:10:4-7, emphasis added.] This suggests only minimal contact between the two mating parts.

Moreover, the only suggestion about the lamp connection is found in the '044 patent, where the socket 98 appears to be a conventional tombstone socket. ['044:4:39-44.] Conventional tombstone sockets appear to have surface areas for electrical connection of about 0.003 in. square. Therefore, the *Amstutz et al.* references teach nothing that would suggest the

present inventions, taken alone or in combination with any other reference of record.

Not only do *Amstutz et al.* suggest only minimal contact between two mating electrical parts, *Amstutz et al.* fail to teach or suggest electronic ballasts, circuit considerations in conjunction with the use of electronic ballasts, or improvements in circuit integrity. Moreover, *Amstutz et al.* fail to teach or suggest any display case suitable for operating in the extreme environmental conditions found in refrigerated display cases (see claim 118). Nothing in *Amstutz et al.* commends itself to solving any of the problems solved by Applicant's inventions or to any combination with *Yoon et al.* Therefore, the Examiner has not made a *prima facie* case of obviousness.

The Examiner relies on *Yoon et al.* for an electronic ballast in a refrigerated display case. *Yoon et al.* fails to teach or suggest a socket for a light source, current carrying conductors having specified surface areas available for contact, which the Examiner acknowledges, or releasable junctions between the conductor and a socket, which the Examiner fails to acknowledge. Moreover, there is nothing about *Yoon et al.* that commends itself to *Amstutz et al.*, or to *Robertson et al.* (US Patent No. 5,904,415), and there is nothing about *Amstutz et al.* or *Robertson et al.* that commends either of them to *Yoon et al.* There is no suggestion to combine these references.

Even assuming some suggestion that two of the references can be combined, which Applicant disputes, such a combination would not lead to the claimed inventions. Any teaching in *Amstutz et al.* relating to plug/socket characteristics shows that the surface area of contact is minimal. Moreover, the only suggestion about a lamp connection is found in the '044 patent, where the socket 98 appears to be a conventional tombstone socket, and the lamp connection in *Robertson et al.* goes into a tombstone socket as well. Conventional tombstone sockets appear to have surface areas for electrical connection of about 0.003 inches square. As *Yoon et al.* suggests nothing about electrical junctions, nothing in a purported combination of *Amstutz et al.* and *Yoon et al.* or *Yoon et al.* and *Robertson et al.* teaches or suggests the claimed combinations.

III. Nothing in *Amstutz et al.* Suggests a Refrigerated Display Case

The Examiner asserts that *Amstutz et al.* teach a fluorescent lamp in a refrigerated display case. Nothing in either of the *Amstutz et al.* patents teaches, suggests or implies any type of display case more specific than a jewel display case. There is no suggestion of any type of display case that would subject a lighting circuit, let alone one using an electronic ballast, to the environmental extremes experienced in refrigerated display cases. Therefore, the Examiner has failed to establish a *prima facie* case of obviousness as to claim 118, reciting aspects of refrigerated display cases, by relying on *Amstutz et al.*

IV. No Prior Art Addresses Ballast Circuits and Surface Areas of Contact

The Examiner has failed to establish a *prima facie* case of obviousness because none of the references teach or suggest electrical junctions in conjunction with electronic ballasts in display cases. None of the references appreciate any problem arising with the use of electronic ballasts in lighting circuits and poor electrical connections in those circuits. Only Applicant has recognized the problem, especially acute in extreme environments such as those found in refrigerated display cases, and solved the problem. Therefore, none of the references appreciate that there is any problem in electronic ballast lighting circuits, and there is no teaching or suggestion for combining any of the references for solving such problems. Therefore, there can be no *prima facie* case where the prior art fails to even address structures or problems addressed in the claimed combinations. Finally, even if such combinations might be suggested, which Applicant disputes, none suggest the improved electrical junctions called for in the present claims. Furthermore, the Examiner concedes that none of the references teach or suggest the improved electrical junctions recited in the claims.

V. The Examiner Does Not Identify Pertinent "Art"

The Examiner asserts repeatedly, but without support, that it would have been obvious to one of ordinary skill in the art to provide an improved surface area of contact. Not only is the art

produced by the Examiner deficient, there is no suggestion in that art about improved circuit junctions. Furthermore, the Examiner fails to identify what "art" is being relied upon for the stated proposition. None of the art cited by the Examiner addresses junctions in lighting circuits using electronic ballasts, or such circuits for refrigerated display cases. Therefore, it must be other "art", which the Examiner fails to identify. *Yoon et al.* relates to the internal ballast circuit and is not concerned with lamp sockets, circuit junctions or the like. None of the other references are directed to or even discuss problems or issues in lighting circuits using electronic ballasts. Therefore, these references fail to support the Examiner's contention that it would have been obvious to one of ordinary skill in that art to provide an improved surface area of contact. Consequently, the Examiner fails to establish a *prima facie* case of obviousness.

The rejected claims are patentable. None of the references address lighting circuit integrity in circuits using electronic ballasts. There is no teaching or suggestion that any of these references can be combined, or that any such combinations suggest the claimed inventions. None of the references taken singly or in combination teach or suggest the claimed combinations. In view of the foregoing, reconsideration of the Final Rejection is respectfully requested.

Respectfully submitted,

Dated: May 8, 2002

James A. Henricks
Registration No. 31,168

HENRICKS, SLAVIN & HOLMES LLP
840 Apollo Street, Ste. 200
El Segundo, CA 90245-4737
310-563-1456
310-563-1460 (fax)
jhenricks@hsh-iplaw.com (Email)